What is claimed is:

1. A method of manufacturing silicon carbide by forming silicon carbide on a substrate surface from an atmosphere containing a silicon carbide feedstock gas, characterized in that:

said silicon carbide feedstock gas comprises at least a silicon source gas and a carbon source gas;

the partial pressure ps of said silicon source gas in said atmosphere is constant (with ps>0), the partial pressure of said carbon source gas in said atmosphere consists of a state pc1 and a state pc2

(where pc1 and pc2 denote partial pressures of said carbon source gas, pc1>pc2, and the partial pressure ratio (pc1/ps) falls within a range of 1-10 times the attachment coefficient ratio (Ss/Sc), the partial pressure ratio (pc2/ps) falls within a range of less than one time the attachment coefficient ratio (Ss/Sc)

(where Ss denotes the attachment coefficient of silicon source gas to the silicon carbide substrate at the substrate temperature during formation of said silicon carbide, and Sc denotes the attachment coefficient of carbon source gas to the silicon carbide substrate at the substrate temperature during the forming of said silicon carbide))

that are repeated in alternating fashion (referred to as condition 1 below); or

the partial pressure pc of said carbon source gas in said atmosphere is constant (with pc>0), the partial pressure of said silicon source gas in said atmosphere consists of a state ps1 and a state ps2

(where ps1 and ps2 denote partial pressures of said silicon source gas, ps1<ps2, and the partial pressure ratio (pc/ps1) falls within a range of 1-10 times the attachment coefficient ratio (Ss/Sc), the partial pressure ratio (pc/ps2) falls within a range of less than one time the attachment coefficient ratio (Ss/Sc)

(where Ss denotes the attachment coefficient of silicon source gas to the silicon carbide substrate at the substrate temperature during formation of

said silicon carbide, and Sc denotes the attachment coefficient of carbon source gas to the silicon carbide substrate at the substrate temperature during the forming of said silicon carbide))

that are repeated in alternating fashion (referred to as condition 2 below).

2. The manufacturing method of claim 1 wherein in condition 1, pc1 and pc2 each continue for a prescribed period, and in condition 2, ps1 and ps2 each continue for a prescribed period.

3. The manufacturing method of claim 1 wherein silicon carbide is formed on a substrate the temperature of which is not less than 900°C.

4. The manufacturing method of claim 1 wherein said silicon source gas is at least one member selected from the group consisting of $SiH_4$, $Si_2H_6$, $SiCl_4$, $SiHCl_3$, $SiH_2Cl_2$, $Si(CH_3)_4$, $SiH_2(CH_3)_2$, $SiH(CH_3)_3$, and $Si_2(CH_3)_6$ , and said carbon source gas is at least one member selected from the group consisting of $CH_4$, $C_3H_8$, $C_2H_5$, $C_2H_6$, $C_2H_2$, $C_2H_4$, $CCl_4$, $CHF_3$, and $CF_4$.

5. The manufacturing method of claim 1 wherein pc2 or ps1 is essentially 0.

6. The manufacturing method of claim 1 wherein pc2 is essentially 0, the time during which the partial pressure of the carbon source gas is set to pc1 is 0.1-30 seconds, and the time during which the partial pressure of the carbon source gas is set to pc2 is 0.1-30 seconds.

7. A method of manufacturing silicon carbide wherein silicon carbide manufactured in claim 1 is employed as seed crystal and silicon carbide is formed on said seed crystal by vapor phase epitaxy, sublimation recrystallization, or liquid deposition.

8. The manufacturing method of claim 7 wherein silicon carbide blocks 4-6 inches in bore are formed by vapor phase epitaxy, sublimation recrystallization, or liquid deposition.

9. A silicon carbide block having a bore of 4-6 inches.

10. The silicon carbide block of claim 9 wherein the planar defect density is not more than $10^3/cm^2$.

11. A semiconductor element employing as substrate the silicon carbide block described in claim 9 or 10.

12. A method of manufacturing composite materials wherein silicon carbide manufactured by the method of claim 1 is employed as seed crystal and diamond and/or gallium nitride is formed on said seed crystal.